

INTRODUCTION

'Red dot' is the most common form of abnormality detection system in clinical practice. The SCoR 2013 policy recommends replacement with preliminary clinical evaluation (PCE) however this requires a different skill set and radiographers are arguably not yet ready for this change. Wright (2013) identified the need to be able to make accurate decisions before processing to writing commentary. The 'traffic light' system potentially bridges this gap as it requires radiographers to make a decision on all the images they take. The option to provide a preliminary clinical evaluation (PCE) is an addition feature which again scaffolds the radiographers towards the wider goal.

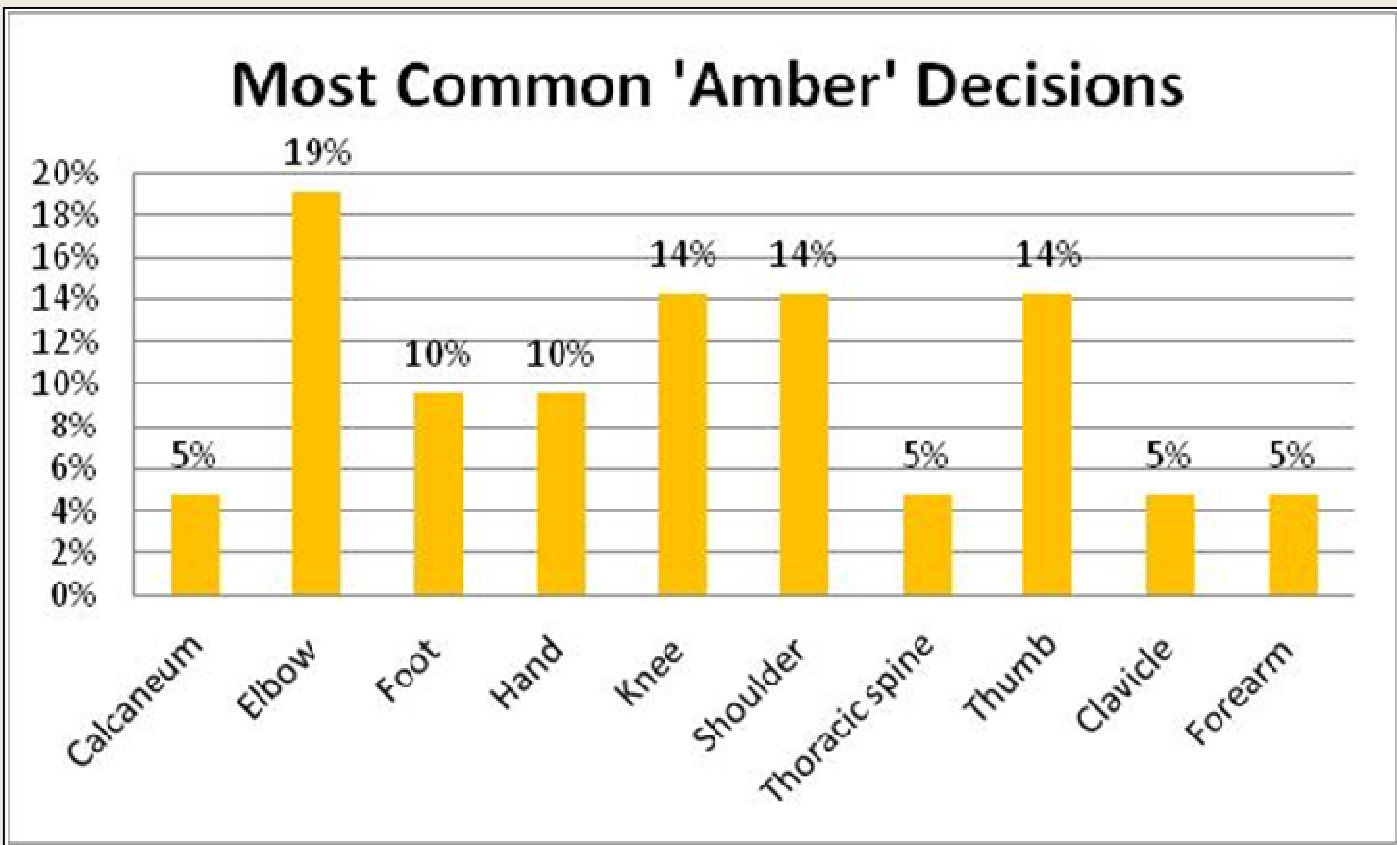
Methodology

Radiographers (n=39) at a busy NHS hospital were required to make a decision on every patient examined for three weeks. 'Red' = Abnormal, 'Green' = Normal, 'Amber' = Unsure; and provide a preliminary clinical evaluation (PCE). Quantitative analysis of responses enabled assessment of accuracy, sensitivity and specificity. Qualitative analysis of the PCE's enabled assessment of written description versus the actual report.

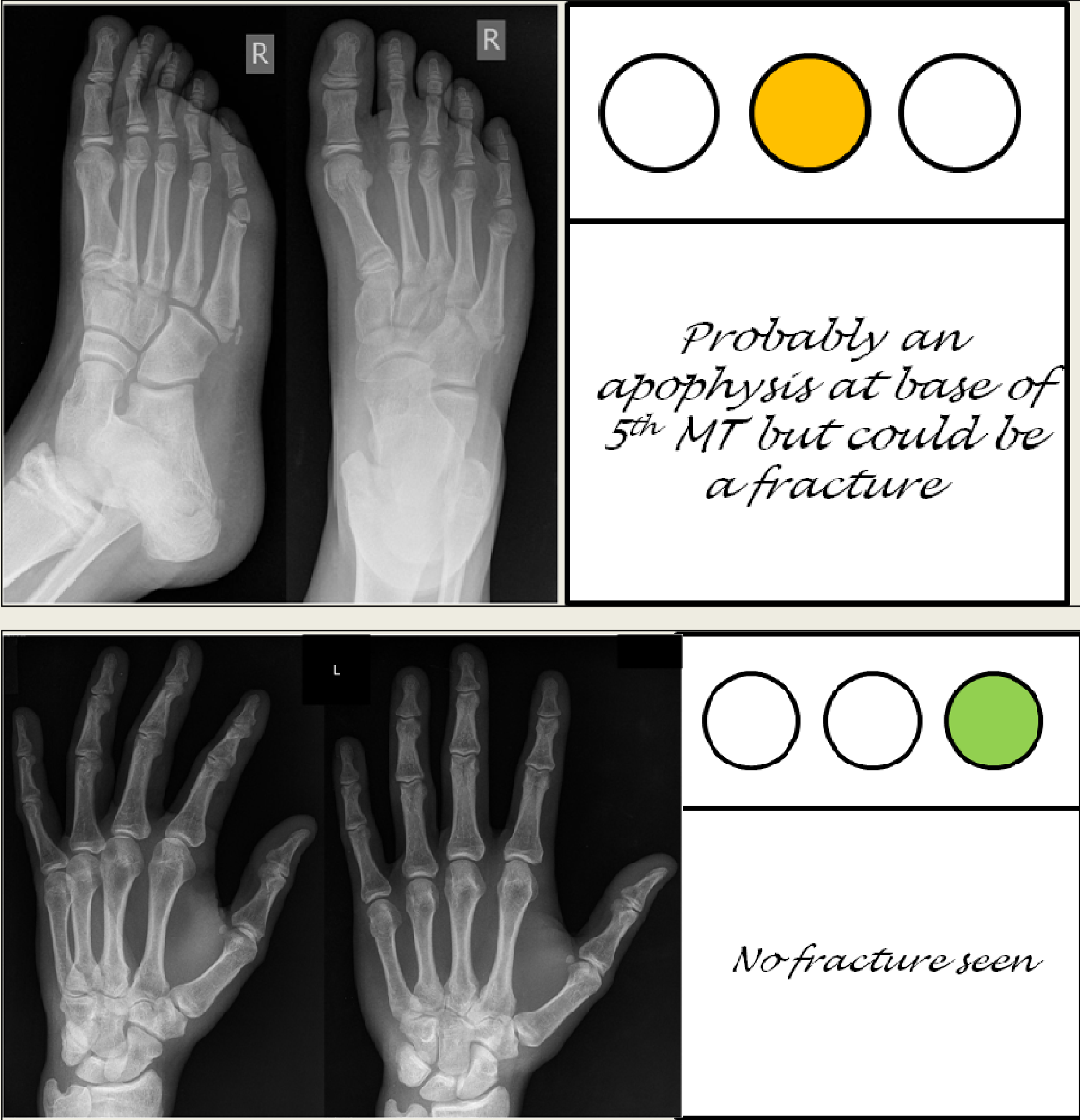
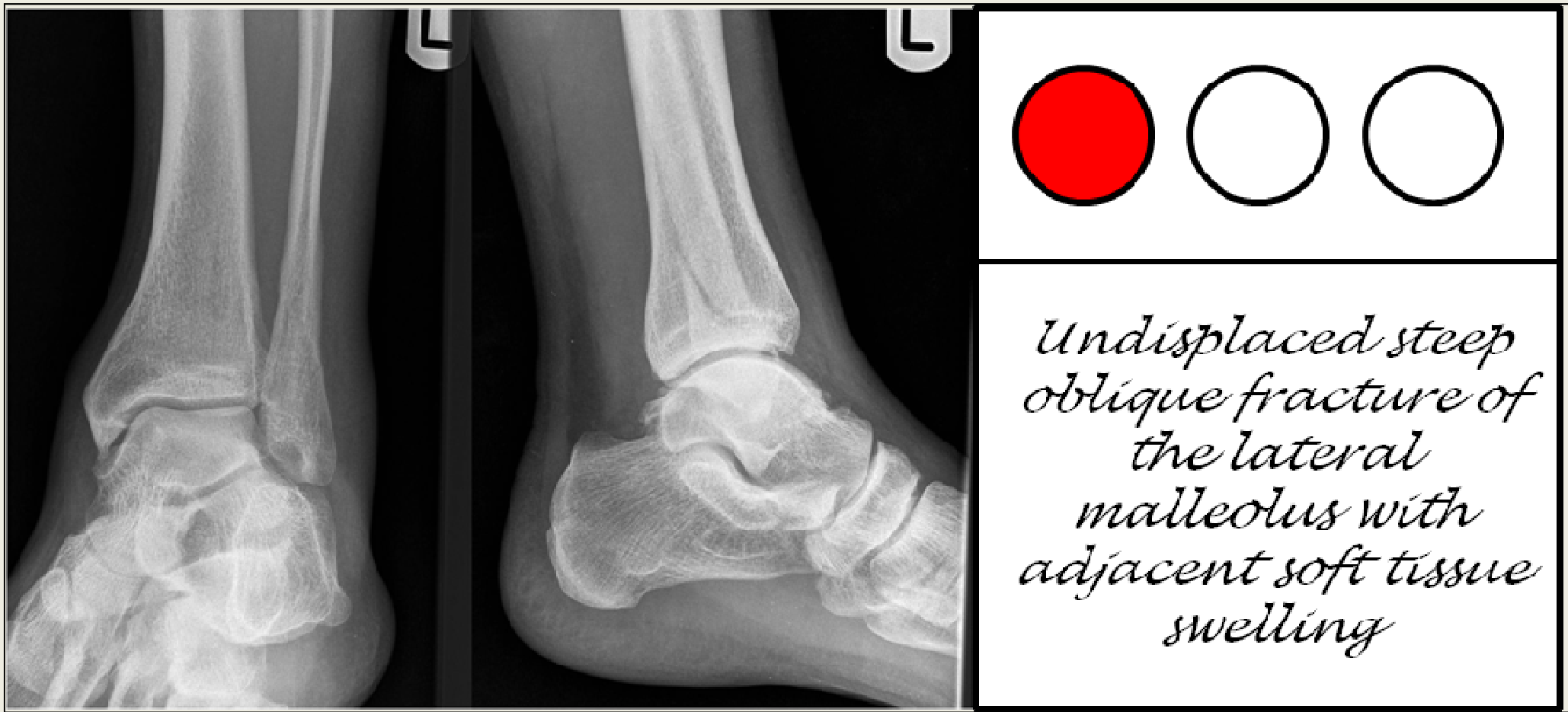
RESULTS

The total number of examinations undertaken in the accident and emergency department was 1411. 39 radiographers took part in the study although 14 effectively disengaged by simply applying an amber dot to all cases and made no attempt at PCE. The body parts most frequently examined include the foot (13%), ankle (12.5%), wrist (10.8%), hand (9.5%), knee (7.5%), pelvis (6.7%) and shoulder (6%). The remainder of the examinations accounted for 34%. 34% (n=484) of cases received a red or green response. Analysis of the red (n=133) decisions reveals an overall sensitivity performance range from 50 to 100% with a mean of 88.2%, green (n=355) reveals a specificity performance range from 67 to 100% with a mean of 96.1%. Overall accuracy ranged from 60 to 100% with a mean of 93.4%.

66% (n=927) received an amber response. Analysis reveals the most problematic body parts.



Typical examples of the responses are;



DISCUSSION

Some radiographers prefer not to participate in any form of abnormality signalling system but their non-compliance is currently masked with red dot because a response is optional. This is confusing for referring clinicians because even obvious fractures may not receive a red dot, suggesting that the referring radiographer has missed the abnormality. Without 'traffic light', progression to a mandatory PCE system will be extremely difficult for this population. Of those who did participate, many made consistently accurate decisions (red or green) when they could. Opting for amber when unsure is a more useful decision than guessing and getting it wrong. It is now obvious to the referring clinician that additional input may be required to confirm the diagnosis. The range of sensitivity (50-100%) and specificity (67-100%) scores highlights that whilst some radiographers are able to make reliable decisions, others clearly are not. Analysis of the amber responses facilitate the targeting of professional development activities in order to scaffold learning; initially focussing on the most common anatomical areas for indecision or error. Further training is required for most radiographers in the writing of preliminary clinical evaluation. Verbal feedback from the participating radiographers suggests that they found 'traffic light' a more satisfying system than red dot, and that it potentially will help them to improve their skills.

CONCLUSION

The traffic light system requires a response to every image taken, providing a clear indication to the referring clinician; a major advantage over red dot. Further development of some radiographers may be necessary for them to reliably partake in 'traffic light'. Establishing an individual image interpretation benchmark performance by radiographer is recommended before participating in any form of abnormality signalling system.

REFERENCES

SCoR(2013) Preliminary Clinical Evaluation and Clinical Reporting by Radiographers: Policy and Practice Guidance [Internet]
Wright,C. (2013) 'RadBench: Benchmarking Image Interpretation Performance'. UKRC. June. Liverpool